

CLAIMS AMENDMENTS

1(original). An optical fiber probe comprising:

a near-field probe having a core transmitting light incident from an external light source and having a circular cone structure formed on an end of the core, and a cladding coated on a surface of the circular cone structure core to protect the core; and

a plurality of thin metal layers coated on the near-field probe, symmetrically disposed on opposite sides of the near-field probe, and spaced-apart from each other to generate an electrical potential difference.

2 (original). The optical fiber probe of claim 1, wherein the thin metal layers is made of aluminum.

3 (original). The optical fiber probe of claim 1, wherein the near-field probe is formed with a conductive layer coated thereon, and a portion of the conductive layer is removed by scanning a focused ion beam on the conductive layer to form the thin metal layers.

4 (original). The optical fiber probe of claim 1, wherein the electrical potential difference is generated between the thin metal layers to allow light to pass through the near-field probe.

5 (original). The optical fiber probe of claim 1, wherein the thin

metal layers are spaced-apart from each other by a distance according to at least one of a wavelength of light incident to the near-field probe and a characteristic of a material forming the thin metal layers.

6 (original). The optical fiber probe of claim 5, wherein at least one of the thin metal layers comprises sides forming an angle of 60° with respect to a center of the near-field probe when the wavelength of the light is 400nm, and the material is aluminum.

7 (original). The optical fiber probe of claim 5, wherein at least one of the thin metal layers comprises sides forming an angle of 90° with respect to a center of the near-field probe when the wavelength of the light is 650nm, and the material is silver.

8 (original). An optical recording apparatus comprising:
a laser diode generating light;
an optical disc storing data using an optical signal;
an optical fiber transmitting the light emitted from the laser diode;
a near-field probe scanning laser beam on a recording medium by transmitting the light, which is incident from the laser diode, using a voltage potential difference therebetween; and

a lens condensing the light emitted from the laser diode to scan the light on the recording medium using the optical fiber;

wherein the near-field probe comprises a plurality of metal layers coated on opposite sides thereof and symmetrically spaced-apart from each other to generate an

electrical potential difference.

Claim 9 (Deleted)

10 (currently amended). The optical fiber probe of claim 9 8, wherein the near-field probe comprises an opening formed on a distal end thereof, and the electrical potential difference increases a light transmission rate of the opening.

Claims 11-20 (Deleted)

21(original). A method used with an optical recording and/or reproducing apparatus, the method comprising:

- generating light from a light source;
- transmitting the light through an optical fiber having a core and a cladding coated on a surface of the core to protect the core;
- transmitting the light toward a recording medium through a near-field probe formed on one end of the optical fiber; and
- generating an electrical potential difference using a plurality of metal layers formed on the near-field probe and spaced-apart from each other by a distance.